CLAIMS:

1. A light-emitting device, comprising:

a semiconductor structure having a plurality of semiconductor layers and including an active region within said layers;

first and second conductive metal electrodes contacting respectively different semiconductor layers of said structure; and

a migration barrier for preventing migration of metal from at least one of said electrodes onto the surface of the semiconductor layer with which said at least one electrode is in contact.

2. The device as defined by claim 1, wherein said at least one electrode comprises a silver-containing electrode.

3. The device as defined by claim 1, wherein said device further includes means for applying electrical signals across said first and second electrodes, and wherein said migration barrier is operative to prevent electrochemical migration of metal from said at least one electrode on said surface of the semiconductor layer with which said electrode is in contact.

4. The device as defined by claim 2, wherein said device further includes means for applying electrical signals across said first and second electrodes, and wherein said migration barrier is operative to prevent electrochemical migration of metal from said at least one electrode on said surface of the semiconductor layer with which said electrode is in contact.

5. The device as defined by claim 1, wherein said plurality of semiconductor layers includes an n-type layer of a III-V nitride semiconductor and a p-type layer of a III-V nitride semiconductor, and wherein said at least one electrode is deposited on said p-type layer.

6. The device as defined by claim 4, wherein said plurality of semiconductor layers includes an n-type layer of a III-V nitride semiconductor and a p-type layer of a III-V nitride semiconductor, and wherein said at least one electrode is deposited on said p-type layer.

7. The device as defined by claim 5, wherein said device includes an active light-emitting region at the pn junction between said p-type layer and said n-type layer.

8. The device as defined by claim 6, wherein said device includes an active light-emitting region at the pn junction between said p-type layer and said n-type layer.

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9. The device as defined by claim 1, wherein said migration barrier comprises a guard ring around the periphery of said at least one electrode.

10. The device as defined by claim 4, wherein said migration barrier comprises a guard ring around the periphery of said at least one electrode.

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11. The device as defined by claim 1, wherein said guard ring contacts said at least one electrode.

12. The device as defined by claim 4, wherein said guard ring contacts said at least one electrode.

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13. The device as defined by claim 1, wherein said guard ring is spaced from said at least one electrode.

14. The device as defined by claim 4, wherein said guard ring is spaced from said at least one electrode.

15. The device as defined by claim 13, wherein said guard ring is held at a positive potential with respect to the potential of said at least one electrode.

16. The device as defined by claim 14, wherein said guard ring is held at a positive potential with respect to the potential of said at least one electrode.

17. The device as defined by claim 11, wherein said guard ring covers a portion of said surface of the semiconductor layer with which said at least one electrode is in contact.

18. The device as defined by claim 13, wherein said guard ring covers a portion of said surface of the semiconductor layer with which said at least one electrode is in contact.

19. The device as defined by claim 11, wherein said guard ring has a substantially step-shaped cross-section, and also covers the edge of said at least one electrode.

20. The device as defined by claim 12, wherein said guard ring has a substantially step-shaped cross-section, and also covers the edge of said at least one electrode.

21. The device as defined by claim 1, wherein said migration barrier comprises a guard sheet that covers the surface of said at least one electrode.

22. The device as defined by claim 4, wherein said migration barrier comprises a guard sheet that covers the surface of said at least one electrode.

23. The device as defined by claim 10, wherein said guard ring comprises a conductive material.

24. The device as defined by claim 22, wherein said guard sheet comprises a conductive material.

25. The device as defined by claim 23, wherein said conductive material is a conductive metal.

26. The device as defined by claim 24, wherein said conductive material is a conductive metal.

27. The device as defined by claim 25, wherein said conductive metal comprises a metal containing at least one of Ni, Ti, W, Al, Cr, Cu, Au, Sn, Rh, Re, Ru.

28. The device as defined by claim 26, wherein said conductive metal comprises a metal containing at least one of Ni, Ti, W, Al, Cr, Cu, Au, Sn, Rh, Re, Ru.

29. The device as defined by claim 1, wherein said migration barrier includes an edge protector portion which covers an edge of said at least one electrode, and a conductive guard sheet that covers said edge protector portion and at least a portion of said at least one electrode.

30. The device as defined by claim 2, wherein said migration barrier includes an edge protector portion which covers an edge of said at least one electrode, and a conductive guard sheet that covers said edge protector portion and at least a portion of said at least one electrode.

31. The device as defined by claim 30, wherein said edge protector portion comprises a dielectric material.

32. A light emitting device, comprising:

a semiconductor structure that includes a light-emitting active region between an n-type layer of III-V nitride semiconductor and a p-type layer of III-V nitride semiconductor;

a p-electrode comprising silver-containing metal

deposited on said p-type layer;

an n-electrode coupled with said n-type layer;

means by which electrical signals can be applied across said electrodes to cause light emission from the active region; and

a migration barrier for preventing electrochemical migration of silver ions from said p-electrode toward the active region.

33. The device as defined by claim 32, wherein said migration barrier comprises a guard ring around the periphery of said p-electrode.

34. The device as defined by claim 33, wherein said guard ring covers a portion of the p-type layer.

35. The device as defined by claim 33, wherein said guard ring contacts said p-electrode.

36. The device as defined by claim 33, wherein said guard ring is spaced from said p-electrode.

37. The device as defined by claim 36, wherein said guard ring is held at a positive potential with respect to the

potential of said p-electrode.

38. The device as defined by claim 35, wherein said guard ring has a substantially step-shaped cross-section, and also covers the edge of said p-electrode.

39. The device as defined by claim 32, wherein said migration barrier comprises a guard sheet that covers the surface of said p-electrode.

40. The device as defined by claim 33, wherein said guard ring comprises a conductive material.

41. The device as defined by claim 39, wherein said guard sheet comprises a conductive material.

42. The device as defined by claim 40, wherein said conductive material is a conductive metal.

43. The device as defined by claim 41, wherein said conductive material is a conductive metal.

44. The device as defined by claim 42, wherein said conductive metal comprises a metal containing at least one of Ni,

Ti, W, Al, Cr, Cu, Au, Sn, Rh, Re, Ru.

45. The device as defined by claim 43, wherein said conductive metal comprises a metal containing at least one of Ni, Ti, W, Al, Cr, Cu, Au, Sn, Rh, Re, Ru.

46. A method for making a light emitting device, comprising the steps of:

forming a semiconductor structure that includes a light-emitting active region between an n-type layer of III-V nitride semiconductor and a p-type layer of III-V nitride semiconductor;

depositing a p-electrode comprising silver-containing metal on said p-type layer, and an n-electrode on said n-type layer; and

providing a conductive migration barrier around said p-electrode for preventing migration of silver ions from said p-electrode toward the active region.

47. The method as defined by claim 46, wherein said step of providing a conductive migration barrier comprises providing a guard ring around the periphery of said p-electrode.

48. The method as defined by claim 46, wherein said step of

providing a conductive migration barrier comprises providing a guard sheet that covers the surface of said p-electrode.

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49. The method as defined by claim 47, wherein said step of providing a guard ring comprises providing a guard ring that contacts said p-electrode.

50. The method as defined by claim 47, wherein said step of providing a guard ring comprises providing a guard ring that is spaced from said p-electrode.